



**VI Međunarodna naučna  
konferencija**



**Regionalni razvoj i  
prekogranična saradnja**

**ZBORNIK RADOVA**

**Pirot, april 2023.**



**ZBORNİK RADOVA**  
**BOOK OF PROCEEDINGS**



**REGIONALNI RAZVOJ I PREKOGRANIČNA  
SARADNJA**  
**REGIONAL DEVELOPMENT AND CROSS-BORDER  
COOPERATION**

**Urednici/Editors:**

Bojan Đorđević Phd

Dragan Kostić Phd

Aleksandar Simonović

**Pirot, april 2023.**

**ZBORNIK RADOVA V MEĐUNARODNE NAUČNE KONFERENCIJE**  
**BOOK OF PROCEEDINGS OF THE V INTERNATIONAL SCIENTIFIC**  
**CONFERENCE**

**REGIONALNI RAZVOJ I PREKOGRANIČNA SARADNJA**  
**REGIONAL DEVELOPMENT AND CROSS-BORDER COOPERATION**

**ORGANIZATORI KONFERENCIJE / CONFERENCE ORGANIZERS:**

**Srpska akademija nauke i umetnosti - ogranak u Nišu, Grad Pirot, UO Privredna komora  
Pirot, Fakultet za menadžment Zaječar, Univerzitet Metropolitan Beograd**

Serbian Academy of Sciences and Arts - branch in Nis, City of Pirot, Contracting Chamber  
of Economy Pirot District, Faculty of Management Zajecar, Metropolitan University of  
Belgrade,

**IZDAVAČ/PUBLISHER:**

Fakultet za menadžment Zaječar / Faculty of Megatrend Zajecar

**UREDNICI / EDITORS:**

Bojan Đorđević PhD

Dragan Kostic PhD

Aleksandar Simonović

**RECENZENTI / REVIEWERS:**

Prof. Bojan Đorđević, Prof. Petar Andjelković, Chief Assistant Dr Georgi Tsolov, prof. Zoran  
Matevski, PhD Georgi Nikolov, Dr Silvana Ilić

**LEKTURA / PROOFREADING**

Jelena Stamenović

**TEHNIČKI UREDNIK / TECHNICAL EDITOR:** Aleksandra Madić

**ŠTAMPA / PRINTED:**

**Vavik 1805 doo Pirot – ogranak Vavik Print**

**ISBN ISBN 978-86-900497-5-2**

**TIRAŽ / PRINTING: 80**

**štampano izdanje / printed edition**

© 2022 Fakultet za menadžment Zaječar

**Sva prava zadržana. Nijedan deo ove knjige ne može biti reprodukovan, čuvan u sistemu  
za pretraživanje ili prenositi u bilo kom obliku ili na bilo koji način, bez prethodne pismene  
dozvole izdavača. / All rights reserved. No part of this book can be reproduced, stored in  
the search system, or transmitted in any form or in any way, without the prior written  
permission of the publisher.**

## NAUČNI ODBOR/SCIENTIFIC COMMITTEE

- Дописни члан САНУ Влада Вељковић, Огранак САНУ у Нишу, председник Научно-програмског одбора,
- Инострани члан САНУ Мирослав Крстић, Универзитет Калифорнија у Сан Дијегу,
- проф. др Тадија Ђукић, декан Економског факултета Универзитета у Нишу,
- проф. др Небојша Бојовић, декан Саобраћајног факултета универзитета у Београду,
- проф. др Душан Живковић, декан Пољопривредног факултета универзитета у Београду,
- проф. др Миле Илић, редовни професор Универзитета,
- проф. др Јелена Станковић, Економски факултет Универзитета у Нишу,
- проф. др Владислав Марјановић, Економски факултет Универзитета у Нишу,
- проф. др Бојан Ђорђевић, декан Факултета за менаџмент Зајечар,
- проф. др Силвана Илић, Факултет за менаџмент Зајечар,
- проф. др Драган Костић, председник Привредне коморе Пирот,
- проф. др Александар Ђорђевић, Правни факултет Универзитета у Нишу,
- проф. др Светлана Дабић-Милетић, Саобраћајни факултет Универзитета у Београду,
- проф. др Младен Ђурић, Факултет организационих наука Универзитета у Београду,
- проф. др Петар Анђелковић, Филозофски факултет Универзитета у Приштини, Косовска Митровица,
- проф. др Димитар Панајотов Димитров, ректор Универзитета за светску и националну економију, Софија, Бугарска,
- проф. др Викторија Рјапукхина, Државни технолошки универзитет Шухов у Белгороду, Русија,
- проф. др Стати Василев Статев, Институт за Економију и Политику, Универзитет за националну и светску економију, Софија, Бугарска,
- проф. др Георги Николов, Факултет за менаџмент и администрацију, Универзитет за националну и светску економију, Софија, Бугарска,
- проф. др Циприана Сава, Универзитет „Crestina Dimitrie Cantemir”, Темишвар, Румунија,

- проф. др Јан Полцин, Stanisław Staszic Универзитет за примењене науке Пила, Пољска,
- Проф. др. Сотирис Теофанис, Градски колеџ, Европски кампус Универзитета Јорк, Солун,
- проф. др Аристотелис Нанипоулос, Аристотел универзитет Солун, Грчка,
- проф. др Милован Илић, Универзитет Метрополитан, Београд,
- проф. др Душка Матевска, Факултет за педагогију Универзитета Свети Кирил и Методиј, Скопље, Македонија.

#### **ОРГАНИЗАЦИОНИ ОДБОР/ ORGANIZATION COMMITTEE**

- Александар Симоновић, Привредна комора Пирот, председник Организационог одбора,
- проф. др Игор Младеновић, Економски факултет Универзитета у Нишу,
- доц. др Драгица Стојановић, Факултет за менаџмент Зајечар,
- Бојан Ранђеловић, градски већник, Град Пирот,
- мр Горан Стаменовић, Факултет информатичких технологија, Универзитет Метрополитан.

## PREDGOVOR

Ovaj zbornik, koji je pred Vama, sadrži radove sa VI naučne konferencije s međunarodnim učesćem, pod nazivom Regionalni razvoj i prekogranična saradnja, održane 18 novembra 2022. u Pirotu, u organizaciji Srpske akademija nauka i umetnosti – Ogranak SANU u Nišu, Grada Pirotu, Privredne komore Pirot, Fakulteta za menadžment Zajecar i Univerziteta Metropolitana.

Tema Naučnog skupa obuhvata opštu problematiku aktuelnog stanja regionalnog razvoja, prekogranične saradnje kao i analize uticaja nove industrijalizacije na regionalni razvoj. U tom smislu tematska područja na koja je ova konferencija bila fokusirana su bila: Ekonomska politika u službi regionalnog razvoja; Edukacija i razvoj ljudskih resursa u funkciji regionalnog razvoja; Industrija, logistika i transport 4.0 i regionalni razvoj; Međunarodne strategije i projekti i regionalni razvoj; Poljoprivreda, proizvodnja zdrave hrane i turizam u funkciji regionalnog razvoja; Međunarodna logistika i globalni lanci snabdevanja. Kao i ostala pitanja regionalnog razvoja i prekogranične saradnje u okviru kojih su pristigli radovi koji problematizuju pitanja zaštite radnika u vremenima biološkog rata, pristupa proučavanja preduzetništva kao i rada u srpskoj tradiciji, aspekti ruralnog turizma i značaj zdrave hrane i druge srodne teme. Plod konferencije je zbornik naučnih radova pod istim imenom, koji obuhvata 51 rad koji su zadovoljili kriterijume recenzentske komisije. Njegovo kritičko čitanje tek predstoji, ali sa sigurnošću možemo reći da, kako tematski, tako i sadržajno mnogi će naći za sebe teme koje ih interesuju. Moramo, takođe, naglasiti da je interes za učesće na konferenciji veoma dobar, o čemu svedoče i prispeli radovi autora iz Srbije, Bugarske, Rusije, R. Srpske, Grčke, Makedonije.

Nakon prošlogodišnje konferencije, koja je zbog poznatih uslova održana on line, organizatori konferencije izražavaju zadovoljstvo što su ponovo imali priliku da domaće i strane autore ugoste na konferenciji u Pirotu i da uživo imaju priliku da slušaju njihova izlaganja. Naravno, i ovaj put nije sve teklo glatko, te u tom smislu neki autori posebno iz inostranstva nisu uspeli da dođu u Pirot već su svoje radove predstavili putem video prezentacije.

Još jednom priređivači i urednici Zbornika izražavaju zahvalnost svim autorima koji su dostavili svoje radove, koji se nalaze u ovom Zborniku.

U Pirotu, Mart 2023. godine

Urednički odbor





## FOREWORD

This collection, which is before you, contains papers from the VI scientific conference with international participation, entitled Regional development and cross-border cooperation, held on November 18, 2022 in Pirot, organized by the Serbian Academy of Sciences and Arts - SANU Branch in Niš, City of Pirot, Pirot Chamber of Commerce, Faculty of Management Zaječar and Metropolitan University.

The theme of the Scientific Meeting includes the general issue of the current state of regional development, cross-border cooperation, as well as analysis of the impact of new industrialization on regional development. In this sense, the thematic areas on which this conference was focused were: Economic policy in the service of regional development; Education and development of human resources in the function of regional development; Industry, logistics and transport 4.0 and regional development; International strategies and projects and regional development; Agriculture, healthy food production and tourism in the function of regional development; International logistics and global supply chains. As well as other issues of regional development and cross-border cooperation, within which works have been received that problematize the issues of worker protection in times of biological warfare, approaches to the study of entrepreneurship as well as work in the Serbian tradition, aspects of rural tourism and the importance of healthy food and other related topics. The fruit of the conference is a collection of scientific papers under the same name, which includes 51 papers that met the criteria of the review committee. Its critical reading is yet to come, but we can say with certainty that, both thematically and in terms of content, many will find topics that interest them. We must also emphasize that the interest in participating in the conference is very good, as evidenced by the submitted works of authors from Serbia, Bulgaria, Russia, R. Srpska, Greece, Macedonia.

After last year's conference, which was held online due to known conditions, the conference organizers express their satisfaction that they once again had the opportunity to host domestic and foreign authors at the conference in Pirot and to have the opportunity to listen to their presentations live. Of course, not everything went smoothly this time either, and in that sense, some authors, especially from abroad, did not manage to come to Pirot and instead presented their works through a video presentation. Once again, the organizers and editors of the Collection express their gratitude to all the authors who submitted their works, which are included in this Collection.

In Pirot, March 2023

Editorial board



ЗАШТИТА ИНТЕГРИТЕТА РАДНИКА У РАДНОЈ СРЕДИНИ ЗА ВРЕМЕ БИОЛОШКОГ ПАТА COVID-19 ОД 2020. ДО 2022. ГОДИНЕ МС Саша Илић, Факултет за право, безбедност и менаџмент „Константин Велики „Ниш Проф. др Драгица Илић, Факултет за право, безбедност и менаџмент „Константин Велики“ Ниш Др Лепосава Јовановић, Факултет за право безбедност и менаџмент „Константин Велики“Ниш .....	17
REFLEKTIVNI VS. FORMATIVNI MODELI MERENJA KVALITETA USLUGE U TURISTIČKOJ INDUSTRIJI Doc. dr Sunčica Stanković .....	29
PRISTUPI U PROUČAVANJU PREDUZETNIŠTVA Doktorand Slobodan Milić Prof. dr Milovan Vuković .....	43
DOMAĆINSKA EKONOMIJA I SHVATANJE RADA U SRPSKOJ TRADICIJI – NEKADA I SADA Doktorand Slobodan Milić Doktorand Sanja M.Andjelković .....	57
PRILOG SISTEMATIZOVANJU ODRŽIVOG RAZVOJA Prof. dr Tihomir Radovanović Prof. dr Pavle Radanov dr Marko Filijović .....	69
REGIONAL DEVELOPMENT OF TOURISM IN THE EUROPEAN UNION Assistant Professor, Danijela Pantović, Ph.D. Associate Professor, Marija Lakićević, Ph.D. Assistant Professor, Mihailo Ćurčić, Ph.D., Research Associate .....	81
MINING MACHINES' DOWNTIME/FAILURE LEVEL OF DANGER OF CONSEQUENCES AND ESTIMATED RISK OF FAILURE – PRELIMINARY RESEARCH Martina Perišić, Teaching Assistant Vesna Spasojević Brkić, Full Professor Neda Papić, Teaching Assistant <sup>3</sup> Mirjana Misita, Full Professor <sup>4</sup> Ivan Mihajlović, Full Professor <sup>5</sup> .....	89
СТЕПЕН ОПАСНОСТИ ПОСЛЕДИЦА ЗАСТОЈА/ОТКАЗА И ПРОЦЕЊЕНИ РИЗИК ОД ОТКАЗА РУДАРСКИХ МАШИНА – ПРЕЛИМИНАРНО ИСТРАЖИВАЊЕ .....	97
OBLASTI I ASPEKTI REGIONALNE SARADNJE U TURIZMU KOJI UTIČU NA USPEŠNOST POSLOVANJA Dr Zorica Đurić, docent Dr Biljana ilić, vanredni profesor Dr Tijana Krušković, doktorant .....	99
Унапређење запошљавања у циркуларној текстилној индустрији <i>Marina Jovanović<sup>[1]</sup>, Snežana Urošević<sup>[2]</sup>, Milovan Vuković<sup>[3]</sup></i> <sup>1</sup> PhD Candidate at Technical Faculty in Bor, University in Belgrade, Bor, SERBIA <sup>1,2</sup> University of Belgrade, Technical Faculty in Bor, Bor, SERBIA... <sup>109</sup>	
DINAMIKA NACIONALNOG ODRŽIVOG RAZVOJA Prof. dr Tihomir Radovanović dr Marko Filijović Prof. dr Pavle Radanov .....	131
ZELENA EKONOMIJA I ZELENI RAST U SLUŽBI REGIONALNOG RAZVOJA SA ASPEKTA MENADŽMENTA Redovni profesor, Dejan Riznić Asistent, Adrijana Jevtić Saradnik u nastavi, Aleksandra Radić.....	143
ANALIZA KONCEPTA ODRŽIVOSTI U BANKARSTVU I DRUŠTVENO ODGOVORNO POSLOVANJE BANAKA U REPUBLICI SRBIJI Snežana Colić, student doktorskih akademskih studija.....	153

EKONOMSKI INDIKATORI UPRAVLJANJA ŽIVOTNOM SREDINOM I PRIRODNIM RESURSIMA dr Kosana Vićentijević dr Snežana Rakić dr Nataša Simeunović .....	171
NACIONALNO BRENDIRANJE U FUNKCIJI REGIONALNOG RAZVOJA – PODRŠKA DIJASPORE prof. dr Andrea Bučalina Matić doc. dr Ana Jurčić prof. dr Vesna Milanović.....	183
DEFINISANJE I MERENJE KVALITETA PATENTA U FUNKCIJI EFIKASNIJE PRIJAVE I PRIZNANJA Redovni profesor, Bojan Krstić Student doktorskih studija, Marija Jovanović Istraživač saradnik, Milica Jovanović Vujatović.....	205
DEFINING AND MEASURING PATENT QUALITY IN THE AIM OF MORE EFFICIENT APPLICATION AND GRANTING .....	215
UTICAJ EDUKACIJE I RAZVOJA LJUDSKIH RESURSA U FUNKCIJI RAZVOJA POSLOVANJA Doc. dr Dragan Marković Prof. dr Saša Ivanov .....	217
IMPACT OF EDUCATION AND DEVELOPMENT OF HUMAN RESOURCES IN THE FUNCTION OF BUSINESS DEVELOPMENT .....	230
DIGITAL TRANSFORMATION OF AUTOMATED PRODUCTION LINES Nemanja Pavlović, PhD student Vlastimir Nikolic, Full profesor <sup>2</sup> .....	231
AGREGIRANJE NAJEFIKASNIJIH OBLIKA I MERA DRŽAVNE PODRŠKE INOVATIVNOM RAZVOJU REGIONALNIH I SEKTORSKIH EKONOMSKIH SISTEMA U USLOVIMA INDUSTRIJE 4.0. Docent katedre strategijskog menadžmenta, Viktorija Rjapuhina PhD student, Aleksandar Đorđević .....	237
SUPPORTING SMALL FISHING COMMUNITIES - AN OPPORTUNITY FOR BALANCED AND LONG-TERM BLUE GROWTH Boyko Doychinov, PhD Yoanna Ivanova.....	255
JAČANJE LJUDSKIH RESURSA SA ASPEKTA MSP TEKSTILNE I ODEVNE INDUSTRIJE I POBOLJŠANJE REGIONALNE SARADNJE Doc. dr Dragan Dimitrijević Emiritus Živoslav Adamović Prof. dr Snežana Urošević.....	265
INTERMODALNI TERMINALI KAO LOGISTIČKI POTENCIJAL SRBIJE Dr Dragan Č. Kostić, vandredni profesor Aleksandar Simonović, doktorand.....	275
IZAZOVI FINANSIJSKE I MONETARNE STABILNOSTI ZEMALJA ZAPADNOG BALKANA U USLOVIMA IZRAŽENIH GEOPOLITIČKIH RIZIKA prof. dr Vladan Vučić .....	293
JAVNO PRIVATNA PARTNERSTVA U FUNKCIJI REGIONALNOG RAZVOJA SRBIJE Profesor strukovnih studija, Boban Dašić Profesor strukovnih studija, Radmila Trklja .....	309
PREKOGRANIČNA SARADNJA U NOVIM POLITIČKIM USLOVIMA U SVETU SA OSVRTOM NA ISHRANU STANOVNIŠTVA Prof. emeritus ANDON G. Kostadinović ,akademik SKANU .....	319
ORGANIZACIJA VAZDUŠNOG TRANSPORTA ROBE POD TEMPERATURNIM REŽIMOM Sara Jovanović, student master studija Vukašin Pajić, asistent dr Milorad Kilibarda, profesor dr Milan Andrejić, profesor .....	327

FAKTORI USPEHA I POSLOVNI RAST MALIH I SREDNJIH PREDUZEĆA KAO POKRETAČA PRIVREDNOG RAZVOJA Doktorand, Milja Orlandić Mr, Jelena Petrović MA, Sanja Anastasija Marković.....	343
SUCCESS FACTORS AND BUSINESS GROWTH OF SMALL AND MID-SIZED ENTERPRISES AS INITIATORS OF ECONOMIC DEVELOPMENT .....	353
MULTIPLE-CRITERIA ASSESSMENT OF HOTEL WEBSITES Gabrijela Popović, PhD, Associate Professor Đorđe Pucar, MSc, Teaching Assistant.....	355
PRIMENA FAZI LOGIKE ZA KVANTIFIKACIJU FINANSIJSKIH RIZIKA U POSLOVANJU 3PL PROVAJDERA Asistent, Mladen Božić mast. inž. saobr. Prof. dr, Svetlana Dabić-Miletić dipl. inž. saobr. ....	367
PROMENE U OBRAZOVNOM SISTEMU U KOOPERACIJI SA PRIVREDOM I ULAGANJE U LJUDSKE RESURSE dr Dragana Trifunović, vanredni profesor dr Goran Lalić, vanredni profesor dr Milica Nestorović, vanredni profesor .....	383
NEFORMALNO PREDUZETNIČKO OBRAZOVANJE KAO FAKTOR REGIONALNOG RAZVOJA U REPUBLICI SRBIJI Dr Ivana Marinović Matović Vanredni profesor, naučni saradnik, Anđela Lazarević.....	393
RAZVIJENOST SEKTORA MALIH I SREDNJIH PREDUZEĆA U USLOVIMA PANDEMIJE Prof. dr, Silvana Ilić Doc. dr, Milica Paunović .....	403
ULOGA LJUDSKOG KAPITALA U EKONOMSKOM RASTU I REGIONALNOM RAZVOJU Olivera Mijailović, doktorand Dr Vule Mizdraković, vanredni profesor .....	415
PREDUZETNIŠTVO 4.0 – PERSPEKTIVE I IZAZOVI Vanredni profesor, naučni saradnik, Anđela Lazarević Ivana Marinović Matović .....	425
INVESTMENT SPENDING OF LOCAL GOVERNMENTS IN BULGARIA: ACHIEVEMENTS AND CHALLENGES Desislava Stoilova, Associate Professor, PhD .....	433
DIGITALNE PODELE U URBANIM I RURALNIM SREDINAMA: KOMPARATIVNA ANALIZA SRBIJE, BUGARSKE I RUMUNIJE Doc. dr Anđelka Stojanović Prof. dr Ivan Jovanović Prof. dr Sanela Arsić .....	445
ULOGA AUTENTIČNE TRADICIONALNE GASTRONOMIJE U RAZVOJU ODRŽIVOG TURIZMA U SRBIJI Nastavnik veština, Miloš Zrnić Naučni saradnik, Tamara Gajić Asistent, Dragan Vukolić.....	459
THE IMPACT OF DIGITAL COMMUNICATION IN BUSINESS Lyubov Ivanova, Ch.assist. D-r, South West University Neophit Rilski, Blagoevgrad, Bulgaria Department of Economics .	475
TURISTIČKA TRAJNJA U TURIZMU BUDUĆNOSTI Doc. dr Nedžad Azemović .....	481
EDUCATION OF REGIONAL DEVELOPMENT SPECIALISTS FOR THE CONTEMPORARY NATIONAL ECONOMY AND ADMINISTRATION Elka Vasileva Georgi Tsolov Veselina Lyubomirova.....	489

KLIMA I ZDRAVSTVENE EKOSISTEMSKE USLUGE ŠUMA U FUNKCIJI REGIONALNOG RAZVOJA - ŠUMSKI KOMPLEKS BEŠNJAJA, CENTRALNA SRBIJA doc. dr Marina Vukin <sup>1</sup> vanr. prof. dr Violeta Babić <sup>2</sup> asistent sa doktoratom dr Branko Kanjevac <sup>2</sup> .....	497
ZNAČAJ INOVACIONE INFRASTRUKTURE ZA PODSTICANJE POTENCIJALA INOVACIONOG SISTEMA Toma Dašić Naučni saradnik, Ivan Stojković .....	511
СВЕТСКИ БАРБАРУС И БАЛКАНСКИ НАРОДИ Проф.др Петар Анђелковић .....	525
SUSTAINABLE TRANSPORT AND CONNECTIVITY IN THE WESTERN BALKANS - A CRITICAL ANALYSIS OF THE EU'S STRATEGIC PERSPECTIVE AND FUND INTENTIONS Desislava Botseva, Chief Assistant Professor Georgi Nikolov, Associate Professor Nikola Tanakov, Chief Assistant Professor .....	537
NESIGURNOST ZAPOSLENJA KAO KARATERISTIKA SAVREMENIH RADNIH ODNOSA* Istraživač pripravnik, Andreja Todorović Istraživač pripravnik, Andrija Popović Miljana Talić .....	553
MOGUĆNOSTI POVEĆANJA STEPENA KVALITETA USLUGE U SEKTORU SRPSKE RURALNE GASTRONOMIJE TOKOM PANDEMIJE Viši naučni saradnik, Tamara Gajić Nastavnik veština, Miloš Zrnić Asistent, Dragan Vukolić.....	565
PERCEPCIJA URBANOG STANOVNIŠTVA SRBIJE O RAZVOJU GASTRONOMSKOG TURIZMA Asistent, Dragan Vukolić Nastavnik veština, Miloš Zrnić Viši naučni saradnik, Tamara Gajić .....	589
SUDSKI I JAVNOBELŽNIČKI DEPOZIT Dr Milena Trgovčević Prokić .....	603
ELEKTRONSKO UČENJE prof. dr Miroslav Milutinović, Fakultet za pravo, bezbednost i menadžment u Nišu prof. dr Andon Kostadinović, Fakultet za pravo, bezbednost i menadžment u Nišu .....	617
GIS MODUL ZASNOVAN NA OTVORENOM KODU ZA PROJEKTOVANJE BEŽIČNIH TELEKOMUNIKACIONIH SISTEMA U REGIONALNOJ I PREKOGRANIČNOJ SARADNJI mr Goran Stamenović dr Dejan Rančić .....	623
INFORMACIONE TEHNOLOGIJE U ZDRAVSTVENOM SISTEMU KAO POKRETAČ REGIONALNOG RAZVOJA Asistent sa doktoratom Miloš Tošić Msc doktorand Goran Jeličić Msc doktorand Vladimir Jestrović .....	637
ZNAČAJ I ULOGA GURANIH I VUČENIH TOKOVA ZA REALIZACIJU PROCESA DISTRIBUCIJE U LANCIMA SNABDEVANJA Prof. dr, Svetlana Dabić – Miletić dipl. inž. saobr. Asistent, Nikola Pavlov mast. inž. saobr. Asistent, Mladen Božić mast. inž. saobr. Aleksandra Đelekar dipl. inž. saobr. ....	645
PREKOGRANIČNA SARADNJA I NJEN DALJI RAZVOJ NA PRELAZU MILENIJUMA Akad. SKANU, Prof. dr Radomir D. Đorđević Prof. francuskog jezika, Ivana Grujić.....	661

УЛОГА ЕЛИТА ЗНАЊА У РАЗВОЈУ ТРАНСГРАНИЧНЕ САРАДЊЕ И КУЛТУРЕ МИРА НА БАЛКАНУ професор емеритус Др Љубиша Р. Митровић Мср Дуња З. Величковић, истраживач приправник .....	673
---	-----

## MULTIPLE-CRITERIA ASSESSMENT OF HOTEL WEBSITES

Gabrijela Popović, PhD, Associate Professor<sup>1</sup>

Đorđe Pucar, MSc, Teaching Assistant<sup>2</sup>

**Abstract:** *Today, the interaction between the hotel and guests has changed under the influence of the Internet. Tourists – future hotel guests – use the websites to gain all pieces of information needed for making a decision – should visit the hotel and surroundings or not. With that matter, hotels need to have well-prepared and organized websites. Previously said points to the necessity of measuring the quality of websites. In this article, the multiple-criteria assessment of the hotel websites based on the SWARA, PSI, and MARCOS methods is proposed. The four websites of the four-star hotels situated in Eastern Serbia are evaluated against five criteria. The prime goal, which involves emphasizing the applicability of the multiple-criteria approach and pointing out the key features which should have a quality hotel website, is achieved.*

**Keywords:** *SWARA, PSI, MARCOS, hotel website, Eastern Serbia.*

### Introduction

Nowadays, the way in which tourists chose hotels and tourism destinations has changed under influence of the Internet. Tourists can find the information they need on the websites of the hotels or tourism organizations of the particular area. Especially has changed the possibility of booking the hotel, because this could be very easily done over the Internet, by its website, or other adequate platforms that offer a whole spectrum of different tourism accommodations. All these imply that the success of a hotel or certain tourist destination depends on a well-organized and informative website.

The competition in the tourism and hotel industry is very sharp, so the quality of the websites plays an important role in attracting tourists and gaining business success (Stanujkic et al., 2019). The websites represent a tool that enables connecting and fostering relationships with tourists as future or loyal guests. So, the quality of the websites becomes an area that requires significant attention because it has a great part in creating an image of a hotel. All of said leads to the conclusion that measuring the quality of websites is very important and necessary. By measuring the quality of the websites, hotel managers could relatively easily understand what features of the website are good, and which should be improved.

---

<sup>1</sup> Faculty of Applied Management, Economics and Finance, Belgrade, University Business Academy in Novi Sad, Serbia, gabrijela.popovic@mef.edu.rs

<sup>2</sup> Faculty of Applied Management, Economics and Finance, Belgrade, University Business Academy in Novi Sad, Serbia, djordje@mef.edu.rs



Factors that influence the quality of the website are various, and it is difficult to define which of them have greater importance relative to others. Sometimes, the factors are mutually conflicting, and giving an advantage to one of them could lead to neglecting others. Multiple-Criteria Decision-Making (MCDM) methods could help in overcoming this issue and enabling successful estimation of the importance of the considered factors i.e. criteria as well as to assess the website's quality according to them.

Until now, many different MCDM methods (Dammak et al., 2016), as well as their appropriate extensions (Afful-Dadzie et al., 2017; Sun et al., 2018; Kahraman et al., 2020; Hinduja & Pandey, 2021; Pelta et al., 2021), are proposed. Besides, this crisp end extended MCDM methods find their application in various business fields as a decision-making aid (Sitorus et al., 2019; Dotoli et al., 2020; Nuhu et al., 2021; Wen et al., 2021; Zakeri et al., 2022). The authors proposed the application of different MCDM methods and models for evaluation of the website quality in many business areas (Li & Sun, 2020; Özkan et al., 2020; Ramyar et al., 2020; Samanlioglu et al., 2020; Shayganmehr & Montazer, 2020).

For the purpose of this article, the subjective-objective model is applied to define the significance of the considered criteria as well as to assess the quality of the websites of the given hotels. For determining the criteria significance the Step-wise Weight Assessment Ratio Analysis - SWARA (Keršulienė et al., 2010) which is of subjective type, and the objective Preference Selection Index – PSI method (Maniya & Bhatt, 2010) are used. The Measurement of alternatives and ranking according to the COmpromise solution – MARCOS method (Stević et al., 2020) is applied for the final estimation of the hotel websites. The four hotels placed in Eastern Serbia are submitted under evaluation, and they are assessed against five evaluation criteria. With the aim of presenting the applicability of the proposed approach, the article is organized as follows: in Section 1 the proposed model is presented; Section 2 contains a case study; at the end, the conclusion is given.

## 1. Methodology

### 1.1. SWARA method

The SWARA method is proposed by Keršulienė et al. (2010). Until now, it is used for determining the criteria weights and facilitation of decision-making processes in various business fields (Radović & Stević, 2018; Alinezhad & Khalili, 2019; Balali et al., 2022). The computational procedure of the SWARA method relies on the one presented in the paper of Stanujkic et al. (2015).

**Step 1.** Arrange the chosen criteria in descending order consistent with expected significance.

**Step 2.** The decision-maker should associate the relative significance of criterion  $j$  according to the previous criterion ( $j-1$ ). This should be performed for every criterion, starting from the second.

**Step 3.** The coefficient  $k_j$  should be calculated by using the following Eq.:

## MULTIPLE-CRITERIA ASSESSMENT OF HOTEL WEBSITES

---

$$k_j = \begin{cases} 1 & j = 1 \\ s_j + 1 & j > 1 \end{cases}, \quad (1)$$

where  $s_j$  is the ratio of the comparative importance of the average value.

**Step 4.** The recalculated weight  $q_j$  should be calculated by using Eq. (2):

$$q_j = \begin{cases} 1 & j = 1 \\ \frac{k_{j-1}}{k_j} & j > 1 \end{cases}. \quad (2)$$

**Step 5.** The relative weights of the criteria should be determined in the following manner:

$$w_j = \frac{q_j}{\sum_{k=1}^n q_k}, \quad (3)$$

where  $w_j$  denotes the relative weights of criterion  $j$ .

**Step 6.** In the final step, the alternatives should be ranked in ascending order. The alternative which is in the first place has the highest value of  $w_j$ .

### 1.2. PSI method

The PSI method is introduced by Maniya and Bhatt (2010). The authors applied it to resolving business problems of a different kind (Vahdani et al., 2014; Petković et al., 2017; Bharathi et al., 2022; Lotfabadi et al., 2022). Based on Maniya and Bhatt (2010) and Stanujkic et al. (2017), the computational procedure of PSI method could be illustrated by following a series of steps.

**Step 1.** Define the goal and determine the evaluation criteria.

**Step 2.** Form the initial decision-making matrix  $D$  in the following way:

$$D = [x_{ij}]_{m \times n}, \quad (4)$$

where  $x_{ij}$  represents ratings of the alternative  $i$  relative to criterion  $j$ ,  $m$  denotes the number of alternatives and  $n$  is the number of criteria.

**Step 3.** Form the normalized decision-making matrix by using following Eqs.:

$$r_{ij} = \frac{x_{ij}}{\max_i x_{ij}} \quad \text{if } j \in B, \quad (5)$$

$$r_{ij} = \frac{\min_i x_{ij}}{x_{ij}} \quad \text{if } j \in C, \quad (6)$$

where  $B$  denotes the benefit criteria, and  $C$  denotes cost criteria.

**Step 4.** Compute the preference variation value relative to each criterion in the following manner:

$$\chi_j = \sum_{i=1}^m (r_{ij} - \bar{r}_j)^2, \quad (7)$$

where  $\bar{r}_j$  remarks the mean value of normalized ratings of criterion  $j$  which is computed as follows:

$$\bar{r}_j = \frac{1}{m} \sum_{i=1}^m r_{ij}. \quad (8)$$

**Step 5.** Compute deviation in the preference variation value in the following way:

$$\Omega_j = 1 - \chi_j. \quad (9)$$

**Step 6.** Define the criteria weights using the Eq. (10):

$$w_j = \frac{\Omega_j}{\sum_{j=1}^n \Omega_j}. \quad (10)$$

**Step 7.** Compute the preference selection index of alternatives in the following manner:

$$S_i = \sum_{j=1}^n r_{ij} w_j. \quad (11)$$

**Step 8.** Rank the alternatives submitted under evaluation procedure. Alternative that has the highest value of the preference selection index is positioned on the first place.

### **1.3. MARCOS method**

The MARCOS method is introduced by Stević et al. (2020). Although relatively new, this method proved its usefulness in many studies (Puška et al., 2020a; Puška et al., 2020b; Stević & Brković, 2020; Deveci et al., 2021). The computation procedure of the MARCOS method contains the following steps (Stević, et al. 2020).

**Step 1.** Form the initial decision-making matrix.

**Step 2.** Form the extended decision-making matrix that contains the ideal and anti-ideal solutions. The alternative that has the best parameters regarding a particular criterion represents the ideal solution, while the opposite case represents an anti-ideal solution. Determining the ideal and anti-ideal solution could be illustrated by following Eqs.:

$$AAI = \min_j x_{ij} \text{ if } j \in B \text{ and } \max_j x_{ij} \text{ if } j \in C, \quad (12)$$

$$AAI = \max_j x_{ij} \text{ if } j \in B \text{ and } \min_j x_{ij} \text{ if } j \in C. \quad (13)$$

**Step 3.** Normalize the extended initial decision-making matrix. The normalization procedure is performed by using Eqs. (5) and (6).

## MULTIPLE-CRITERIA ASSESSMENT OF HOTEL WEBSITES

---

**Step 4.** Determine the weighted decision-making matrix which is achieved by multiplying normalized matrix values by corresponding weights.

**Step 5.** Calculate the utility degree of the alternatives  $K_i$  by using the following Eq.:

$$K_i^- = \frac{S_i}{S_{aai}}, \quad (14)$$

$$K_i^+ = \frac{S_{aai}}{S_i}, \quad (15)$$

where  $S_i$  ( $i=1, 2, \dots, m$ ) is the sum of the elements of a difficult matrix:

$$S_i = \sum_{j=1}^n v_{ij}. \quad (16)$$

**Step 6.** Form the utility function of the alternatives  $f(K_i)$  by using the following Eq.:

$$f(K_i) = \frac{K_i^+ + K_i^-}{1 + \frac{1-f(K_i^+)}{f(K_i^+)} + \frac{1-f(K_i^-)}{f(K_i^-)}}, \quad (17)$$

where  $f(K_i^-)$  denotes the utility function versus the anti-ideal solution and  $f(K_i^+)$  represents the utility function versus the ideal solution. These functions are determined in the following way:

$$f(K_i^-) = \frac{K_i^+}{K_i^+ + K_i^-}, \quad (18)$$

$$f(K_i^+) = \frac{K_i^-}{K_i^+ + K_i^-}. \quad (19)$$

**Step 7.** Rank the alternatives where the best-ranked alternative has the highest value of the utility function.

## 2. Case Study

The organization and appearance of the hotel websites, better say its quality, influences the level of visitor satisfaction. Because the website visitor represents a potential hotel guest, the quality of the website impacts his/her decision about the reservation of the accommodation in the particular hotel. Many different factors affect the quality of hotel websites. For the need of this research, the factors i.e., criteria which are the base for assessment of the chosen hotel websites are retrieved from the paper of Stanujkic et al. (2017), and they are as follows:

- $C_1$  – Information about reservations
- $C_2$  – Information about facilities
- $C_3$  – Contact information
- $C_4$  – Information about the surrounding area
- $C_5$  – Website management

All given pieces of information are important and contribute to the overall impression of a particular website. Additionally, all criteria are of the benefit type.

Four relatively new four-star hotels placed in Eastern Serbia are submitted under evaluation by applying the proposed MCDM approach. The following hotels are concerned:

- The Stara Planina Hotel. This hotel is located in the Stara Planina mountain which is a relatively new and growing sky center of Eastern Serbia. Its website is available at the following address: [hotelstaraplanina.com](http://hotelstaraplanina.com).
- The Jezero Hotel. This hotel is placed on the peaceful coast of Bor Lake. Its website is available at the following address: [www.hoteljezero.rs](http://www.hoteljezero.rs).
- The Ramonda Hotel. The mentioned hotel has been recently built in the beautiful and intact scenery of the Rtanj mountain. Its website is available at the following address: [ramondahotel.com](http://ramondahotel.com).
- The Sunce Hotel. This hotel, located in the Sokobanja Spa, is lately privatized and entirely renewed to meet the high standards of modern tourists and guests. Its website is available at the following address: [www.suncehotel.rs](http://www.suncehotel.rs).

The initial decision-making matrix, which contains the estimations of the performances of the considered websites of the hotels defined by an expert in the field, is presented in Table 1.

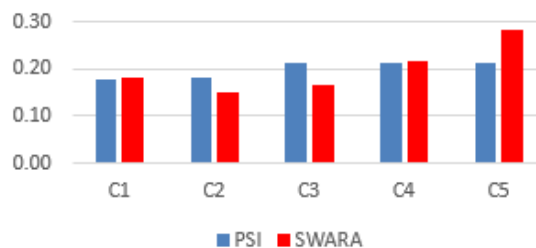
**Table 1. The initial decision-making matrix**

	$C_1$	$C_2$	$C_3$	$C_4$	$C_5$
$A_1$	3	4	3	3	4
$A_2$	2	2	4	3	3
$A_3$	5	5	5	5	5
$A_4$	5	5	5	3	5

*Source: Author's calculation*

First, it is necessary to define the significance of the involved criteria. The subjective-objective approach is used for that matter. The main reason for the application of two MCDM methods for defining the criteria significance is to avoid biased results. For that purpose, evaluation of the criteria is performed by using the SWARA (Keršulienė et al., 2010) as a subjective method and PSI (Maniya & Bhatt, 2010) as an objective method. The obtained results are presented in Figure 1.

**Figure 1. The criteria significance obtained by using SWARA and PSI methods**



*Source: Author's calculation*

## MULTIPLE-CRITERIA ASSESSMENT OF HOTEL WEBSITES

Assessment of the considered criteria by using the SWARA method is consigned to one decision-maker. As Figure 1 illustrates, the decision-maker gives the highest significance to criterion  $C_5$  – *Website management*, while the least important is criterion  $C_2$  – *Information about facilities*. The results obtained by the objective PSI method are more equilibrated which means that criteria  $C_2$  – *Contact information*,  $C_4$  – *Information about the surrounding area*, and  $C_5$  – *Website management* have nearly the same weights.

To obtain the overall significance convenient for the further computational procedure, the geomean of the obtained results is determined. The final criteria significances are presented in Table 2.

**Table 2. The overall criteria significance**

Criteria	Significance
$C_1$	0.1798
$C_2$	0.1668
$C_3$	0.1893
$C_4$	0.2162
$C_5$	0.2479

*Source:* Author's calculation

Now, the final assessment and ranking of the alternative hotel websites are performed by using the MARCOS method. The obtained results are presented in Table 3.

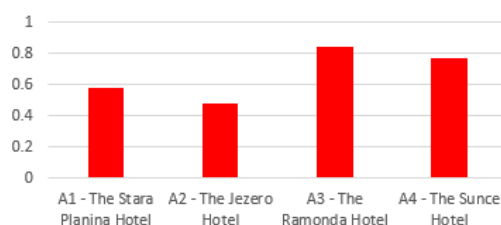
**Table 3. The ranking results**

	$K_i^-$	$K_i^+$	$f(K_i)$	Rank
$A_1$	1.2869	0.6829	0.5768	<b>3</b>
$A_2$	1.0713	0.5685	0.4802	<b>4</b>
$A_3$	1.8843	1.0000	0.8446	<b>1</b>
$A_4$	1.7214	0.9135	0.7715	<b>2</b>

*Source:* Author's calculation

The final ranking order is illustrated in Figure 2.

**Figure 2. The ranking results**



*Source:* Author's calculation

As the results show, the website of the best quality belongs to the Ramonda Hotel (alternative  $A_3$ ). This website offers all the required pieces of information in well designed and logical order. The website of the Ramonda Hotel successfully meets all the requirements and left the visitor well-informed and satisfied. The worst-ranked website belongs to the Jezero Hotel. This website does not adequately fulfill all the considered criteria which positioned it in the last place.

### **3. Conclusion**

Websites become a very important connection between hotels and their future guests. Developing a website that successfully fulfills the expectations of the visitors requires careful analysis and appreciation of all influential factors i. e. criteria. In this article, the MCDM model based on the SWARA, PSI, and MARCOS methods is proposed for the assessment of the hotel website quality. The SWARA and PSI methods enabled conducting of subjective-objective analysis and defining of the criteria weights, while the MARCOS method gave the final ranking results of the involved alternatives. Four high-class hotels situated in Eastern Serbia are assessed against five evaluation criteria. The results revealed the website of the Ramonda Hotel as the best-quality one.

It can be concluded that the proposed MCDM approach led to scientific relevant results. All the criteria involved in the decision process are acknowledged, the computation procedure is relatively understandable, and gained results are reliable and justified. Despite the outlined benefits of the proposed approach, there are certain limitations, too. The computational procedure relies on crisp numbers which are not appropriate because the environment is ambiguous so it is very difficult to express the criteria values as single numbers. Application of the methods extended by fuzzy, grey, or neutrosophic numbers would give more reliable results. Furthermore, in the estimation of criteria significance performed by using SWARA methods only one decision-maker was involved. The same is with creating the initial decision-making matrix, more precise with starting evaluation of the given hotel websites. The relevance of the obtained results would be higher if the procedure involved three or more decision-makers. All of these limitations automatically represent suggestions for future research and improvement of the proposed model. Besides, the proposed model could be applied for the facilitation of the decision-making process not only in the tourism and hotel industry but in other business fields as well.

### **REFERENCES**

- Afful-Dadzie, E., Oplatkova, Z. K., & Beltran Prieto, L. A. (2017). Comparative state-of-the-art survey of classical fuzzy set and intuitionistic fuzzy sets in multi-criteria decision making. *International Journal of Fuzzy Systems*, 19(3), 726-738.
- Alinezhad, A., & Khalili, J. (2019). SWARA method. In *New Methods and Applications in Multiple Attribute Decision Making (MADM)* (pp. 99-102). Springer, Cham.

## MULTIPLE-CRITERIA ASSESSMENT OF HOTEL WEBSITES

---

- Balali, A., Moehler, R. C., & Valipour, A. (2022). Ranking cost overrun factors in the mega hospital construction projects using Delphi-SWARA method: An Iranian case study. *International Journal of Construction Management*, 22(13), 2577-2585.
- Bharathi, A. P., Pallavi, D. R., Ramachandran, M., Ramu, K., & Prasanth, V. (2022). A Study on Preference Selection Index Multi-Criteria Decision Making Techniques. *Data Analytics and Artificial Intelligence*, 2(1), 20-25.
- Dammak, F., Baccour, L., & Alimi, A. M. (2016). Crisp multi-criteria decision-making methods: State of the art. *International Journal of Computer Science and Information Security*, 14(8), 252.
- Deveci, M., Özcan, E., John, R., Pamucar, D., & Karaman, H. (2021). Offshore wind farm site selection using interval rough numbers based Best-Worst Method and MARCOS. *Applied Soft Computing*, 109, 107532.
- Dotoli, M., Epicoco, N., & Falagario, M. (2020). Multi-Criteria Decision-Making techniques for the management of public procurement tenders: A case study. *Applied Soft Computing*, 88, 106064.
- Hinduja, A., & Pandey, M. (2021). Analysis and Comparison of State-of-the-Art Fuzzy Multi-Criteria Decision-Making Methods Under Different Levels of Uncertainty. *Vision*, 09722629211002936.
- Kahraman, C., Onar, S. C., Öztayşi, B., Şeker, Ş., & Karaşan, A. (2020). Integration of fuzzy AHP with other fuzzy multicriteria methods: a state of the art survey. *Journal of Multiple-Valued Logic & Soft Computing*, 35.
- Keršulienė, V., Zavadskas, E. K., & Turskis, Z. (2010). Selection of rational dispute resolution method by applying new stepwise weight assessment ratio analysis (SWARA). *Journal of Business Economics and Management*, 11(2), 243-258.
- Li, R., & Sun, T. (2020). Assessing factors for designing a successful B2C E-Commerce website using fuzzy AHP and TOPSIS-Grey methodology. *Symmetry*, 12(3), 363.
- Lotfabadi, A. K., Hajinezhad, A., Kasaeian, A., & Moosavian, S. F. (2022). Energetic, economic, environmental and climatic analysis of a solar combisystem for different consumption usages with PSI method ranking. *Renewable Energy*, 197, 178-196.
- Maniya, K., & Bhatt, M. G. (2010). A selection of material using a novel type decision-making method: Preference selection index method. *Materials & Design*, 31(4), 1785-1789.
- Nuhu, S. K., Manan, Z. A., Alwi, S. R. W., & Reba, M. N. M. (2021). Roles of geospatial technology in eco-industrial park site selection: State-of-the-art review. *Journal of Cleaner Production*, 309, 127361.
- Özkan, B., Özceylan, E., Kabak, M., & Dağdeviren, M. (2020). Evaluating the websites of academic departments through SEO criteria: a hesitant fuzzy linguistic MCDM approach. *Artificial intelligence review*, 53(2), 875-905.
- Pelta, D. A., Lamata, M. T., Verdegay, J. L., Cruz, C., & Salas, A. (2021, August). Against Artificial Complexification: Crisp vs. Fuzzy Information in the TOPSIS Method. In *19th*



*World Congress of the International Fuzzy Systems Association (IFSA), 12th Conference of the European Society for Fuzzy Logic and Technology (EUSFLAT), and 11th International Summer School on Aggregation Operators (AGOP)* (pp. 345-351). Atlantis Press.

- Petković, D., Madić, M., Radovanović, M., & Gečevska, V. (2017). Application of the performance selection index method for solving machining MCDM problems. *Facta Universitatis. Series: Mechanical Engineering*, 15(1), 97-106.
- Puška, A., Stojanović, I., Maksimović, A., & Osmanović, N. (2020a). Evaluation software of project management used measurement of alternatives and ranking according to compromise solution (MARCOS) method. *Operational Research in Engineering Sciences: Theory and Applications*, 3(1), 89-102.
- Puška, A., Stojanovic, I., Maksimovic, A., & Osmanovic, N. (2020b). Project management software evaluation by using the Measurement of Alternatives and Ranking According to Compromise Solution (MARCOS) method. *Operational Research in Engineering Sciences: Theory and Applications*, 3(1), 89-102.
- Radović, D., & Stević, Ž. (2018). Evaluation and selection of KPI in transport using SWARA method. *Transport & Logistics: The International Journal*, 8(44), 60-68.
- Ramyar, M., Hamzah, A., & Halim, N. (2020). Developing an Integrated Decision-Making Framework for Evaluating Hotel Website under Fuzzy Environment. *Journal of Soft Computing and Decision*, 7(4).
- Samanlioglu, F., Burnaz, A. N., Diş, B., Tabaş, M. D., & Adigüzel, M. (2020). An Integrated fuzzy best-worst-TOPSIS method for evaluation of hotel website and digital solutions provider firms. *Advances in Fuzzy Systems*, 2020.
- Shayganmehr, M., & Montazer, G. A. (2020). An extended model for assessing E-services of Iranian Universities websites using Mixed MCDM method. *Education and Information Technologies*, 25(5), 3723-3757.
- Sitorus, F., Cilliers, J. J., & Brito-Parada, P. R. (2019). Multi-criteria decision making for the choice problem in mining and mineral processing: Applications and trends. *Expert systems with applications*, 121, 393-417.
- Stanujkic, D., Karabasevic, D., & Zavadskas, E. K. (2015). A framework for the selection of a packaging design based on the SWARA method. *Inzinerine Ekonomika-Engineering Economics*, 26(2), 181-187.
- Stanujkic, D., Zavadskas, E. K., Karabasevic, D., Urosevic, S., & Maksimovic, M. (2017). An approach for evaluating website quality in hotel industry based on triangular intuitionistic fuzzy numbers. *Informatica*, 28(4), 725-748.
- Stanujkic, D., Karabasevic, D., Smarandache, F., Zavadskas, E.K., Maksimovic, M. (2019). An Innovative Approach to Evaluation of the Quality of Websites in the Tourism Industry: A Novel MCDM Approach Based on Bipolar Neutrosophic Numbers and the Hamming Distance. *Transformations in Business & Economics*, 18(1/46), 149- 162.

## MULTIPLE-CRITERIA ASSESSMENT OF HOTEL WEBSITES

---

- Stević, Ž., Pamučar, D., Puška, A., & Chatterjee, P. (2020). Sustainable supplier selection in healthcare industries using a new MCDM method: Measurement of alternatives and ranking according to COMpromise solution (MARCOS). *Computers & Industrial Engineering*, 140, 106231.
- Stević, Ž., & Brković, N. (2020). A novel integrated FUCOM-MARCOS model for evaluation of human resources in a transport company. *Logistics*, 4(1), 4.
- Sun, L., Dong, H., & Liu, A. X. (2018). Aggregation functions considering criteria interrelationships in fuzzy multi-criteria decision making: state-of-the-art. *IEEE Access*, 6, 68104-68136.
- Vahdani, B., Mousavi, S. M., & Ebrahimnejad, S. (2014). Soft computing-based preference selection index method for human resource management. *Journal of Intelligent & Fuzzy Systems*, 26(1), 393-403.
- Wen, Z., Liao, H., Zavadskas, E. K., & Antuchevičienė, J. (2021). Applications of fuzzy multiple criteria decision making methods in civil engineering: A state-of-the-art survey. *Journal of Civil Engineering and Management*, 27(6), 358-371.
- Zakeri, S., Chatterjee, P., Cheikhrouhou, N., & Konstantas, D. (2022). Ranking based on optimal points and win-loss-draw multi-criteria decision-making with application to supplier evaluation problem. *Expert Systems with Applications*, 191, 116258.

## VIŠEKRITERIJUMSKA OCENA VEB-SAJTOVA HOTELA

**Apstrakt:** U savremenim uslovima interakcija između hotela i gostiju se promenila pod uticajem Interneta. Turisti – budući gosti hotela – koriste veb-sajtove radi dobijanja svih informacija neophodnih za donošenje odluke – da li posetiti hotel i okruženje ili ne. Imajući navedeno u vidu, od izuzetne važnosti za hotele jeste posedovanje dobro pripremljenih i organizovanih veb-sajtova. Prethodno rečeno ističe neophodnost ocenjivanja kvaliteta veb-sajtova. U ovom radu predložena je višekriterijumska ocena veb-sajtova hotela zasnovana na SWARA, PSI i MARCOS metodama. Četiri veb-sajta, koja pripadaju hotelima sa četiri zvezdice lociranim u istočnoj Srbiji, ocenjena su u odnosu na pet evaluacionih kriterijuma. Osnovni cilj, koji uključuje naglašavanje primenljivosti višekriterijumskog pristupa i ukazivanje na ključne karakteristike koje treba da ima kvalitetan veb-sajt hotela, je postignut.

**Ključne reči:** SWARA, PSI, MARCOS, veb-sajtovi hotela, istočna Srbija.